

CLAIMS

1. An image processing apparatus that corrects an image blur by using a plurality of images acquired by image capturing means, characterized by comprising:
 - blur detection means for detecting a blur amount between the plurality of images;
 - image composition means for performing a composition of the plurality of images using the detected blur amount;
 - acquisition means for acquiring, based on a difference value between the plurality of images and a threshold value thereof, region data for separating the image into regions by changing the threshold value; and
 - display means for selectably displaying the region data for each threshold value.
2. The image processing apparatus according to claim 1, characterized in that said acquisition means acquires a binarized image for each threshold value, which is obtained by binarizing a difference value between an image photographed with flash emission and an image photographed without flash emission.
3. The image processing apparatus according to claim 2, characterized by further comprising setting means for setting a number of images for the composition in

units of region with respect to the binarized image,
characterized in that said display means
selectably displays the binarized image generated by
performing the composition for each threshold value.

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4. The image processing apparatus according to claim
2 or 3, characterized in that said display means stores
the binarized image generated by performing the
composition for each threshold value in a memory, reads
10 the binarized image out of the memory and displays the
image in accordance with a change in the threshold
value.

5. The image processing apparatus according to claim
15 2 or 3, characterized in that said display means stores
the binarized image for each threshold value in a
memory, generates and displays a binarized image in
accordance with a change in the threshold value.

20 6. The image processing apparatus according to claim
2 or 3, characterized in that said display means
generates a binarized image in accordance with a change
in the threshold value, generates a composite image by
performing the composition of the generated binarized
25 image in units of region, and displays the composite
image.

7. The image processing apparatus according to claim 2 or 3, characterized in that said display means stores the binarized image for each threshold value in a memory, reads a binarized image out of the memory and
5 displays the image in accordance with a change in the threshold value.

8. The image processing apparatus according to claim 3, characterized in that said display means generates
10 and displays a binarized image in accordance with a change in the threshold value.

9. An image processing apparatus that corrects an image blur by using a plurality of images acquired by
15 image capturing means, characterized by comprising:

blur detection means for detecting a blur amount between the plurality of images;

image composition means for performing a composition of the plurality of images using the
20 detected blur amount;

acquisition means for acquiring, based on a difference value between the plurality of images and a threshold value thereof, region data for separating the image into regions by changing the threshold value; and

25 correction means for correcting the region data acquired for each threshold value.

10. The image processing apparatus according to claim
9, characterized in that said acquisition means
acquires a binarized image for each threshold value,
which is obtained by binarizing a difference value
5 between an image photographed with flash emission and
an image photographed without flash emission.

11. The image processing apparatus according to claim
10, characterized by further comprising setting means
10 for setting a number of images for the composition in
units of region with respect to the binarized image.

12. The image processing apparatus according to claim
10, characterized in that said correction means
15 corrects the binarized image for each threshold value.

13. The image processing apparatus according to claim
10 or 11, characterized in that said correction means
generates a plurality of binarized images based on an
20 image photographed with flash emission and a plurality
of images photographed without flash emission, and
acquires a binary image corrected by a logical product
between the plurality of binarized images.

25 14. The image processing apparatus according claim
10, characterized in that said correction means
corrects the binarized image for each threshold value

using predetermined additional data.

15. The image processing apparatus according to claim
14, characterized in that the additional data is
5 focalized data of an AF sensor.

16. The image processing apparatus according to claim
15, characterized in that said correction means
determines a region including the focalized region as a
10 correct region among the regions of the binarized
image.

17. The image processing apparatus according to claim
14, characterized in that the additional data is
15 position data obtained by an infrared ray sensor.

18. The image processing apparatus according to claim
17, characterized in that said correction means
determines a region that is closer than a predetermined
20 position as a correct region among the regions of the
binarized image.

19. An image processing method of correcting an image
blur by using a plurality of images acquired by image
25 capturing means, characterized by comprising:

a blur detection step of detecting a blur amount
between the plurality of images;

an image composition step of performing a composition of the plurality of images using the detected blur amount;

an acquisition step of acquiring, based on a
5 difference value between the plurality of images and a threshold value thereof, region data for separating the image into regions by changing the threshold value; and
a display step of selectably displaying the region data for each threshold value.

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20. The image processing method according to claim 19, characterized in that in said acquisition step, a binarized image for each threshold value, which is obtained by binarizing a difference value between an
15 image photographed with flash emission and an image photographed without flash emission, is acquired.

21. The image processing method according to claim 20, characterized by further comprising a setting step
20 of setting a number of images for the composition in units of region with respect to the binarized image,
characterized in that in said display step, the binarized image generated by performing the composition for each threshold value is selectably displayed.

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22. The image processing method according to claim 20 or 21, characterized in that in said display step, the

binarized image generated by performing the composition for each threshold value is stored in a memory, and the binarized image is read out of the memory and displayed in accordance with a change in the threshold value.

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23. The image processing method according to claim 20 or 21, characterized in that in said display step, the binarized image for each threshold value is stored in a memory, and a binarized image is generated and
10 displayed in accordance with a change in the threshold value.

24. The image processing method according to claim 20 or 21, characterized in that in said display step, a
15 binarized image is generated in accordance with a change in the threshold value, a composite image is generated by performing the composition of the generated binarized image in units of region, and the composite image is displayed.

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25. The image processing method according to claim 20 or 21, characterized in that in said display step, the binarized image for each threshold value is stored in a memory, a binarized image is read out of the memory and
25 displayed in accordance with a change in the threshold value.

26. The image processing method according to claim 21, characterized in that in said display step, a binarized image is generated and displayed in accordance with a change in the threshold value.

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27. An image processing method of correcting an image blur by using a plurality of images acquired by image capturing means, characterized by comprising:

a blur detection step of detecting a blur amount
10 between the plurality of images;

an image composition step of performing a composition of the plurality of images using the detected blur amount;

an acquisition step of acquiring, based on a
15 difference value between the plurality of images and a threshold value thereof, region data for separating the image into regions by changing the threshold value; and

a correction step of correcting the region data acquired for each threshold value.

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28. The image processing method according to claim 27, characterized in that in said acquisition step, a binarized image for each threshold value, which is obtained by binarizing a difference value between an
25 image photographed with flash emission and an image photographed without flash emission, is acquired.

29. The image processing method according to claim 28, characterized by further comprising a setting step of setting a number of images for the composition in units of region with respect to the binarized image.

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30. The image processing method according to claim 28, characterized in that in said correction step, the binarized image for each threshold value is corrected.

10 31. The image processing method according to claim 28 or 29, characterized in that in said correction step, a plurality of binarized images are generated based on an image photographed with flash emission and a plurality of images photographed without flash emission, and a
15 binary image corrected by a logical product between the plurality of binarized images is acquired.

32. The image processing method according to claim 28, characterized in that in said correction step, the
20 binarized image for each threshold value is corrected using predetermined additional data.

33. The image processing method according to claim 32, characterized in that the additional data is
25 focalized data of an AF sensor.

34. The image processing method according to claim

33, characterized in that in said correction step, a region including the focalized region is determined as a correct region among the regions of the binarized image.

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35. The image processing method according to claim 32, characterized in that the additional data is position data obtained by an infrared ray sensor.

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36. The image processing method according to claim 35, characterized in that in said correction step, a region that is closer than a predetermined position is determined as a correct region among the regions of the binarized image.

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37. A program causing a computer to execute the image processing method defined in claim 19 or 27.

38. A computer-readable storage medium characterized by storing the program defined in claim 37.

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